AMENDMENT C
(37 C.F.R. 1.111)

IN THE CLAIMS:

Please amend claims 1 and 9 in accordance with 37 C.F.R. 1.121.

The claims are attached herein on separate sheets.

AMENDMENT TO CLAIMS

[Deleted material is struck-through and added material is underlined]

1. (Currently Amended) A pyrophosphoric acid bath for use in cyanogen-free copper-tin alloy plating, characterized by containing **a copper ion, a tin ion, an alkali metal pyrophosphate and** an additive (A) composed of an amine derivative, an epihalohydrin and a glycidyl ether compound.

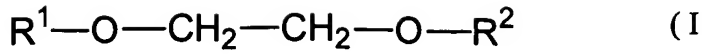
2. (Original) A pyrophosphoric acid bath for use in cyanogen-free copper-tin alloy plating according to claim 1, wherein the amine derivative comprises one member, or two or more members selected from the group consisting of ammonia, ethylenediamine, diethylenetriamine, piperazine, n-propylamine, 1,2-propanediamine, 1,3-propanediamine, 1-(2-aminoethyl)piperazine, 3-diethylaminopropylamine, dimethylamine, hexamethylenetetramine, tetraethylenepentamine, triethanolamine, hexamethylenediamine and isopropanolamine.

3. (Original) A pyrophosphoric acid bath for use in cyanogen-free copper-tin alloy plating according to claim 1, wherein the amine derivative is piperazine or 1-(2-aminoethyl)piperazine.

4. (Original) A pyrophosphoric acid bath for use in cyanogen-free copper-tin alloy plating according to claim 1, wherein ratios of the epihalohydrin and of the glycidyl ether compound in the additive (A) are 0.5 mol to 2 mol of the epihalohydrin and 0.1 mol to 5 mol of the glycidyl ether compound, respectively, per 1 mol of the amine derivative.

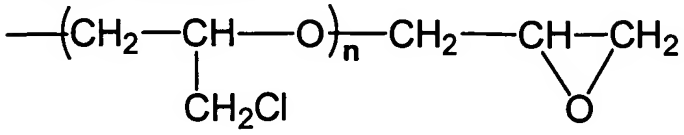
5. (Previously Presented) A pyrophosphoric acid bath for use in cyanogen-free copper-tin alloy plating according to claim 1, wherein the glycidyl ether compound in the additive (A) is a polyfunctional glycidyl ether compound having two or more functional groups in the molecule.

6. (Previously Presented) A pyrophosphoric acid bath for use in cyanogen-free copper-tin alloy plating according to claims 1, wherein the glycidyl ether compound in the additive (A) is a polyglycidyl ether of an adduct of ethylene glycol added with 0 to 2 mol epichlorohydrin, represented by general formula (I)



(I)

(wherein R^1 and R^2, which may be the same or different, each represent a group represented by the following formula



and n is 0 or 1).

7. (Original) A pyrophosphoric acid bath for use in cyanogen-free copper-tin alloy plating according to claim 1, further comprising an additive (B) composed of an organic sulfonic acid and/or an organic sulfonic acid salt.

8. (Previously Presented) A pyrophosphoric acid bath for use in cyanogen-free copper-tin alloy plating according to claim 1, wherein the plating bath has a pH of 3 to 9.

9. (Currently Amended) A coating obtained by using a pyrophosphoric acid bath for use in cyanogen-free copper-tin alloy plating, characterized by containing **a copper ion, a tin ion, an alkali metal pyrophosphate and** an additive (A) composed of an amine derivative, an epihalohydrin and a glycidyl ether compound; wherein a substrate to be coated is immersed in said bath and subsequently subjected to an electrical current to obtain said copper-tin alloy coating.

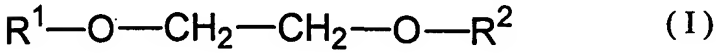
10. (Previously Presented) The copper-tin alloy coating according to claim 9, wherein the amine derivative comprises one member, or two or more members selected from the group consisting of ammonia, ethylenediamine, diethylenetriamine, piperazine, n-propylamine, 1,2-propanediamine, 1,3-propanediamine, 1-(2-aminoethyl)piperazine, 3-diethylaminopropylamine, dimethylamine, hexamethylenetetramine, tetraethylenepentamine, triethanolamine, hexamethylenediamine and isopropanolamine.

11. (Previously Presented) The copper-tin alloy coating according to claim 9, wherein the amine derivative is piperazine or 1-(2-aminoethyl)piperazine.

12. (Previously Presented) The copper-tin alloy coating according to claim 9, wherein ratios of the epihalohydrin and of the glycidyl ether compound in the additive (A) are 0.5 mol to 2 mol of the epihalohydrin and 0.1 mol to 5 mol of the glycidyl ether compound, respectively, per 1 mol of the amine derivative.

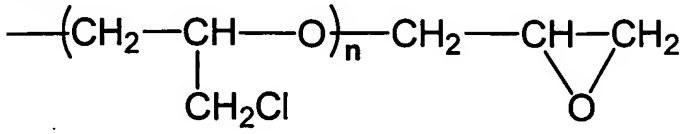
13. (Previously Presented) The copper-tin alloy coating according to claim 9, wherein the glycidyl ether compound in the additive (A) is a polyfunctional glycidyl ether compound having two or more functional groups in the molecule.

14. (Previously Presented) The copper-tin alloy coating according to claim 9, wherein the glycidyl ether compound in the additive (A) is a polyglycidyl ether of an adduct of ethylene glycol added with 0 to 2 mol epichlorohydrin, represented by general formula (I)



$$R^1—O—CH_2—CH_2—O—R^2 \qquad (I)$$

(wherein R^1 and R^2, which may be the same or different, each represent a group represented by the following formula



and n is 0 or 1).

15. (Previously Presented) The copper-tin alloy coating according to claim 9, wherein the pyrophosphoric acid bath further comprises an additive (B) composed of an organic sulfonic acid and/or an organic sulfonic acid salt.

16. (Previously Presented) The copper-tin alloy coating according to claim 9, wherein the plating bath has a pH of 3 to 9.